IN THE CLAIMS

1. A thread tensioning apparatus for a sewing machine comprising:

a pair of clamping members movably mounted in juxtaposition with one another and the thread when passing from the source to the station, the clamping members being movable towards one another and into clamping relation with the thread passing therebetween,

an electromechanical compression load cell disposed in contacting relation against one of said clamping members, said load cell being separate and apart from said clamping members and operable under compression to generate an output signal representative of the compressive load placed on said load cell,

a force member for biasing the other of said clamping members towards said one clamping member and against said thread, said thread being squeezed between said clamping members and said one clamping member being forced against said load cell wherein to place a compressive force on said load cell, and

adjusting means for increasing or decreasing the compressive force applied by said force member against said load cell.

2. The apparatus of Claim 1, further comprising means for displaying the output signal from said load cell, wherein to provide the user with an indication of the amount of compression placed on the load cell, the compressive force being directly related to the amount of tension in the thread.

3. The apparatus of Claim 1 wherein the tension adjuster comprises:

a comparator for receiving and comparing the output signal to a predetermined value representative of a desired thread tension, and providing a command signal to indicate that the clamping pressure against the thread and thus the tension in the thread is not in conformance with a desired tension.

4. The apparatus of Claim 1, further comprising:

a mounting shaft projecting from the housing, the shaft having a proximal and distal end, and

a manipulator knob connected to the distal end of the shaft, and wherein the load cell, clamping members, and force member each have central aperture and are slidably mounted on the support shaft between the housing and the knob.

5. The apparatus of Claim 4 wherein the clamping members each comprise a circular disc, and the force member comprises a helical coil spring.

6. The apparatus of Claim 1 wherein the force member comprises a pneumatic actuator including an actuator body and an actuator rod fixably connected to the distal end of the shaft, the force member including means for a reciprocating movement relative to the actuator body.

7. The apparatus of Claim 6 wherein the clamping members and the spacer are slidably disposed on the support shaft.

8. A tensioning device for a sewing machine for monitoring and adjusting the tension in a thread passed through the machine during a stitching operation, which comprises:

a support shaft having proximal and distal ends, respectively, connected to and spaced from a support wall of the sewing machine,

a ring shaped electromechanical load cell, the load cell being mounted on said shaft and disposed against said support wall, said load cell being operable to generate an output signal representative of the amount of compression placed thereon,

a pair of centrally apertured discs, the discs being mounted on said shaft with one said disc being disposed against said load cell, the thread being routed between and engaged by the discs,

an adjustment knob threadably connected to the distal end of said support shaft,

a resilient helical coil spring disposed about said shaft, said spring having opposite end portions with one and the other of said end portions, respectively, engaging the other of said disc members and said adjustment knob, movement of said knob towards said support wall driving said spring and said disc members against the load cell and compressing said load cell, and

means for receiving and displaying said output signal.